# The Clause Structure

1 IP is the head of a clause

Above a VP there is another projection, the **IP**. The I in IP stands for *Inflection.* The IP is basically verbal in the same sense that a DP is basically nominal. The IP is a functional verbal projection over the lexical VP, in the same way that the DP is a functional nominal projection over the lexical NP.

(1)

                    IP
             ⟋‾‾‾‾‾⟍
         I   VP

The defining core of a clause is its verbal features of finiteness, person, number, and tense. These are often marked on the finite verb. All clauses can be **finite** (*he could play football*) or **non-finite** (... *him to play football*). Since finiteness is a feature of the whole clause, it marked on the head of the clause. This explains why a **finite clause** must have one finite verb.

(2)

                    IP
               ⟋‾‾‾‾‾⟍
        I[+fin]   VP
            | ⟋‾‾‾‾‾⟍
          could   play football
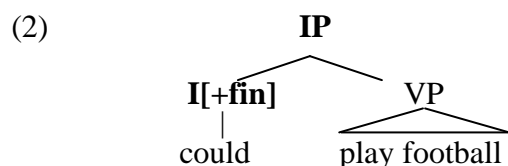
Similarly, a **non-finite clause** must thus have exactly one non-finite verb in the infinitive. The word *to* marks a verb as infinitive and is thought to appear in I[-finite]. A whole clause is thus a category IP.

(3)

                    IP
               ⟋‾‾‾‾‾⟍
        I[-fin]   VP
            | ⟋‾‾‾‾‾⟍
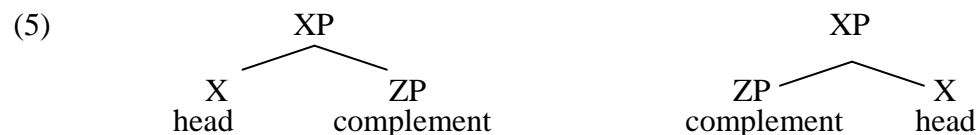   to   play football
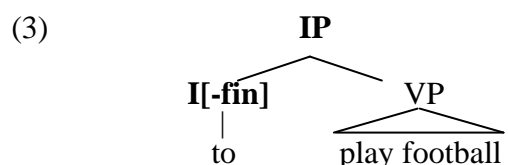
But where is the subject?

The subject is also within the IP projection, but it is neither a complement nor an adjunct, but a *specifier*. We will discuss this below.   The subject is in the specifier position of IP, daughter of IP and sister of I' ("I-bar"), which is a new level of projection between I and IP. A full finite clause therefore has this structure:

(4)

                    IP
              ⟋‾‾‾‾‾⟍
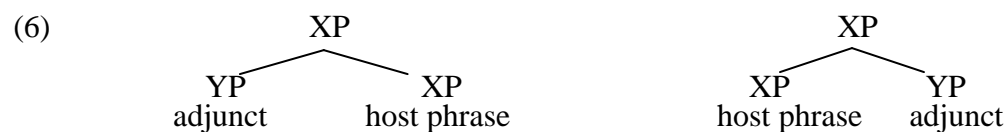   DP   **I'**
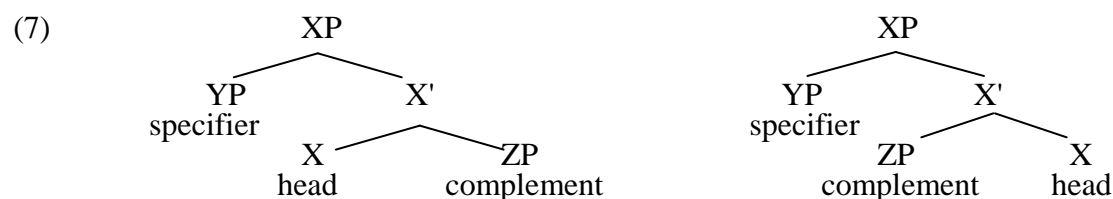
2. The specifier position

We have three basic phrase structure components so far: head, complement, and adjunct. The head is the X which projects into an XP. A *complement* is sister to an X. The order of head and complement depends upon the head type and the language, but it is usually fixed.

(5)
```
        XP                              XP
       /  \                           /    \
      X    ZP                       ZP      X
     head  complement          complement  head
```

An *adjunct* is sister to an XP and daughter to an XP. Adjuncts can often appear either side.

(6)
```
        XP                              XP
       /  \                           /    \
     YP    XP                       XP      YP
   adjunct host phrase         host phrase  adjunct
```

We now add the last one: the *specifier*. The specifier, a phrase YP, is daughter of XP and sister to an intermediate projection called X-bar, and shown as $\overline{\text{X}}$ or X'. Specifiers appear on the left.

(7)
```
           XP                                 XP
          /  \                               /  \
        YP    X'                           YP    X'
     specifier / \                      specifier / \
             X    ZP                             ZP    X
            head  complement                complement head
```
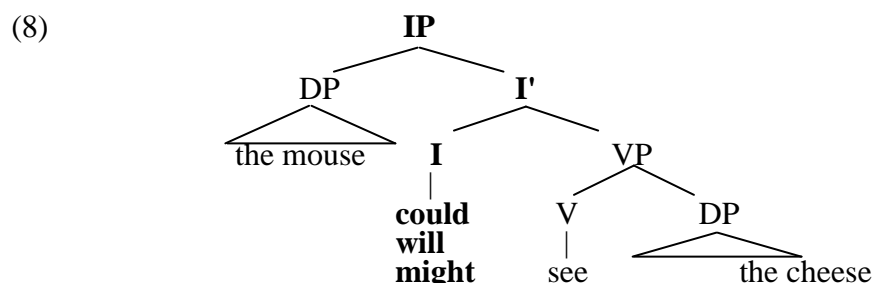
• Specifiers are usually only on the left. (Unlike complements and adjuncts.)

• The complement is in an internal position: sister to X, the head

• The adjunct is in a outside position, sister to XP and daughter of an extra XP.

• The specifier is in a middle position: sister to X', a level of projection between X and XP. They are daughters to XP, the maximal projection. The specifier is a phrasal position.

• When there is no specifier, syntacticians usually leave out the X'.

• A short name for specifiers is *spec*. Linguists talk about *spec-DP* or *SPEC, DP* as the specifier of DP.

• The subject, in spec-IP, and the finite verb, in the I position, are in a *spec-head relation*. This is typically one of agreement. In many languages, finite verbs and subjects **agree** in their feature specifications of person, number,and gender.

3 The syntax of the I position

3.1 Evidence for I position from modals

Why do we think there is a category I and a position above the VP? In English, there is evidence that the *modal verbs* are of this category I[+fin], and always occur in this position.

(8)

```
                        IP
                 ╱            ╲
              DP                I'
           ╱      ╲          ╱      ╲
      the mouse      I          VP
                     │        ╱    ╲
                  could      V       DP
                  will       │      ╱  ╲
                  might     see    the cheese
```

The evidence can be seen when we look at the way English modals differ from normal verbs.

(9)   English modals: only one:
       * He will *(to) must* ...
       * He should *(to) can* ...

(10)   English modals: never under auxiliary:
       * He has *must / musted*...
       * She is *can / canning*

(11)   English modals: never in infinitives:
       * to *must* do something
       * to *can* do something

Speakers of English want to say these things, but the language doesn't allow them. They have to use *have to*, *be able to*, *be going to*....

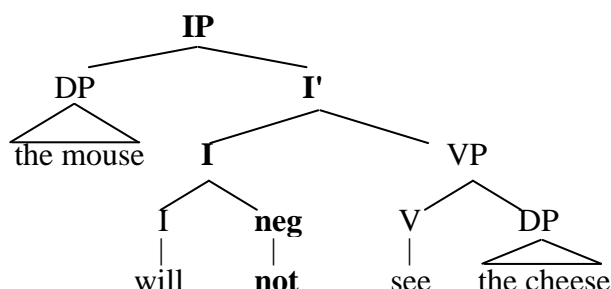Why doesn't the language allow these forms of the modals?

Analysis: normal verbs are V, heading a VP. They can take auxiliaries, and thus appear in compound tenses like the perfect (*have done*), the progressive (*be doing*), and the passive (*be done*). They can also appear as infinitives (*to do*). They can be optionally be finite, and carry the [+finiteness] feature, or non-finite.

English modals are not of the category V, but of the category I and must carry finiteness, the feature **[+finite].** Since a sentence can only have one head, it can only have one I, which means that modals cannot be complements of another higher verb. The [+finite] feature excludes the occurrence as an infinitive.

3.2 Evidence for I position from negation

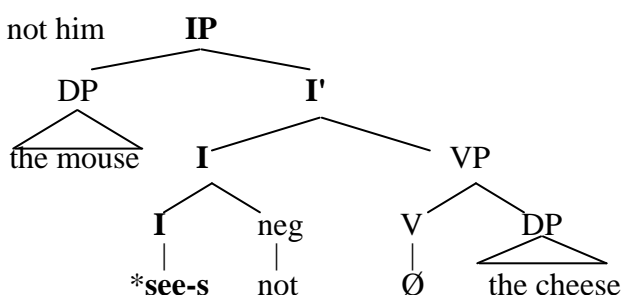Negation *not* follows modals. The analysis we adopt here places negation as an adjunct to I.

(12)

```
                        IP
             ┌──────────┴──────────┐
            DP                     I'
         ┌───┴───┐         ┌───────┴───────┐
        the mouse          I               VP
                        ┌──┴──┐         ┌───┴───┐
                        I    neg        V       DP
                        │     │         │    ┌───┴───┐
                       will  not       see  the cheese
```

This makes it natural that some modals can fuse with negation to form a single word.

(13)   should + not = shouldn't
        will + not = won't

On the other hand, a finite main verb cannot be in I. Thus it cannot precede 'not':
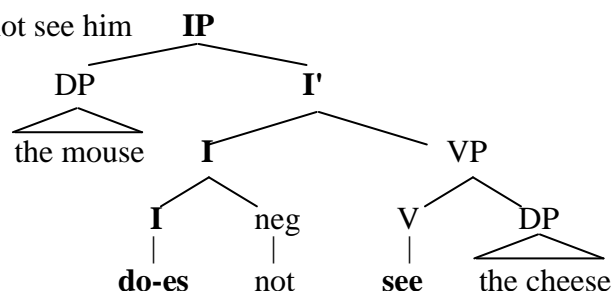
(14)   * She sees not him

```
                        IP
             ┌──────────┴──────────┐
            DP                     I'
         ┌───┴───┐         ┌───────┴───────┐
        the mouse          I               VP
                        ┌──┴──┐         ┌───┴───┐
                        I    neg        V       DP
                        │     │         │    ┌───┴───┐
                      *see-s  not       Ø   the cheese
```

Nor can it fuse with the negative not, which also suggests that normal verbs cannot appear in I.

(15) * seesn't   * seen't   * seen'ts

Negative clauses without modals require ***do-insertion:*** *She sees not him. *She not sees him.*

(16)   She does not see him

```
                        IP
             ┌──────────┴──────────┐
            DP                     I'
         ┌───┴───┐         ┌───────┴───────┐
        the mouse          I               VP
                        ┌──┴──┐         ┌───┴───┐
                        I    neg        V       DP
                        │     │         │    ┌───┴───┐
                      do-es   not      see  the cheese
```
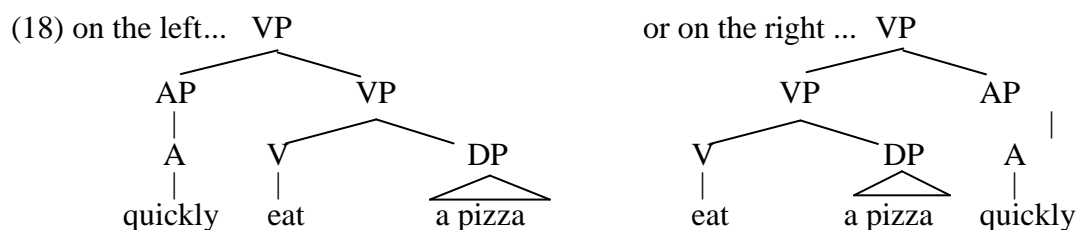
Why is the form of *do* required? The auxiliary *do* does not add any meaning here. It seems that *do* provides the head of the sentence I with something to put its inflection on. Notice that this *dummy do* can also fuse with the negative *not*, like modals, which we think are in I.

(17)   don't   doesn't

3.3 Evidence for the I position from adverbs

Adverbs provide evidence for the I position too. Adjuncts appear at the edges of VPs ....

(18) on the left...   VP   or on the right ...   VP

```
        VP                                                      VP
      /    \                                                  /    \
    AP      VP                                              VP      AP
    |      /  \                                            /  \      |
    A     V    DP                                         V    DP    A
    |     |    /\                                         |    /\     |
 quickly eat  a pizza                                    eat  a pizza quickly
```

So an adverb such as *quickly* can appear at either end of a VP, but not inside the VP or inside the IP. Notice that finite auxiliaries usually pattern the same way as modals.

(19)   a. I must [vp quickly eat a pizza].   I have [vp often eaten Indian food].
       b.*I quickly must [vp eat a pizza].   *I often [vp have eaten Indian food].
       c.*I must [vp eat quickly a pizza].   *I have [vp eaten often Indian food].
       d. I must [vp eat a pizza quickly].   I have [vp eaten Indian food often].

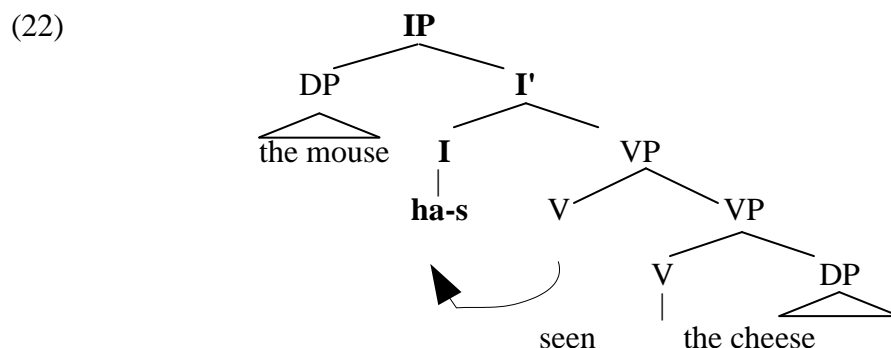To see this more clearly, we show the sentences in more detail:

(20)   a. [IP I (*quickly) must [vp (quickly) eat (*quickly) a pizza (quickly) vp]IP]
       b. [IP I (*often) have [vp (often) eaten (*often) Indian food (often) vp]IP]

Note that the position of the adverb is not just "after the first verb", because the adverb stays in the same place even if there is no modal. Compare (19)a-d and (22)a,c,d to see this:

(21)   a. I quickly eat a pizza.   I often cook Indian food.
       c.*I eat quickly a pizza.   *I cook often Indian food.
       d. I eat a pizza quickly.   I cook Indian food often.

4 Auxiliaries can move to I

Auxiliaries seem to occupy the I position too (see above *I have **often** eaten Indian food*) but they have infinitive forms (*to have seen him*) and appear as the complement of other verbs (*I should have seen him*).   It seems that auxiliaries are of the category V, and start off in their own V position, but can **move** to the position I, if they are finite.

(22)

```
                        IP
                      /    \
                    DP      I'
                    /\     /  \
             the mouse    I    VP
                         |    /  \
                        ha-s V    VP
                             :   /  \
                             :  V    DP
                            ◄   |    /\
                              seen  the cheese
```

Support for this is the fact that adverbs follow finite auxiliaries as they follow modals.
(23)   a. I have often eaten Indian food.   perfect *have*
       b. I am always eating pizza.   progressive *be*
       c. I am rarely found in my office.   passive *be*

The negative *not* follows auxiliaries too and can fuse with them.

(24)   a. I haven't eaten Indian food.   perfect *have*
            b. She isn't eating pizza.   progressive *be*
            c. He isn't found in his office.   passive *be*

But we can see that they seem to stay in their V base position, if the I is not empty.

(25)   She must often **have** eaten Indian food.

5 Main verbs and I: Trouble

Clauses without auxiliaries or modals are still centred around the IP, which is still specified as [+finite]. But the finite affix -s in this structure. does not appear in the I position, but is attached to the verb in V.

The reasons for this are complex and poorly understood, but it seems that there is an 'abstract relation' between the I position and the inflection of the verb. Sometimes is it said that the features move down from the I to the V position to meet the finite verb. Sometimes it is thought that the verb moves up 'covertly'. We need not solve this problem here.

(26)
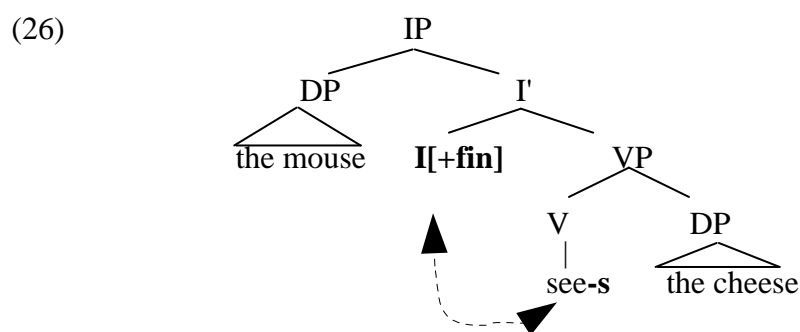
We still cannot put an adverb after a main verb, even if it carries the finite inflection, for instance. Note that this inflection may be a zero morpheme - .

(27)   a. She quickly eats/ate a pizza.   I often eat- /ate Indian food.
        b.*She eats/ate quickly a pizza.   *I eat- /ate often Indian food.
        c. She eats/ate a pizza quickly.   I eat- /ate Indian food often.

Interestingly, a *not* seems to break the abstract relation between I and the inflectional ending on a finite main verb. It would appear that the *not* requires something visible to hang on to. Or perhaps the 'abstract link' between the V and the I position requires the to be directly next to each other.
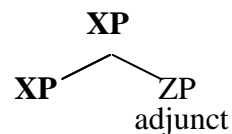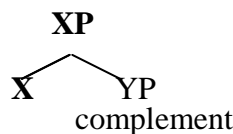
(28)   * She not sees him
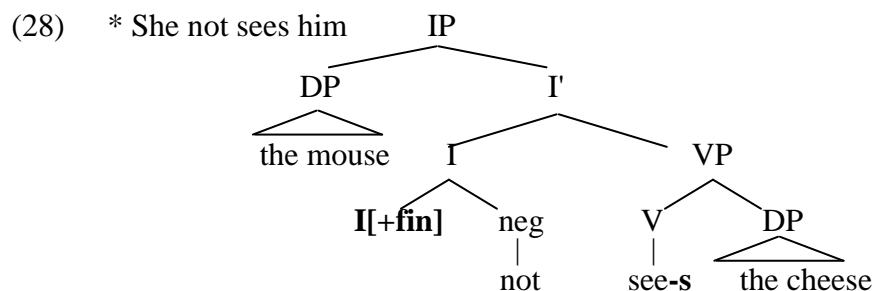
Rules so far ...

1. All lexical items belong to one of these categories A, N, V, D, I, (also C 'complementizer')

2. All categories project into a phrasal category. So for instance N is the head of NP.

3. All categories **can** have complements. Complements are sisters of the head (eg N) and daughters of the phrasal projection (eg NP). Complements are phrasal projections (eg DP).

(i)
```
           XP
          /  \
        X      YP
```
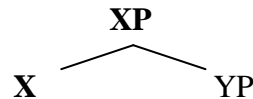
4. In English, complements are always on the right.

5. We must distinguish arguments and adjuncts. Arguments are participants in an action or situation which are already part of the meaning. (eg *wife* means 'female partner of another person', so this other person is an argument; *give* has three arguments, the giver, the thing given, and the person receiving it.). Adjuncts are just optional addition details.

6. Most arguments (but not subject arguments) are complements, so sisters to X. Adjuncts are attached to phrasal projections 'on the outside', at least in English. They are thus sisters to XP and daughters to an additional XP which we add on top.

```
       XP                          XP
      /  \                        /  \
    X     YP                    XP     ZP
       complement                    adjunct
```

7. Certain sorts of verbs can take a VP as their complement. In English, the perfect auxiliary verb *have* takes a VP with the status past participle, the progressive auxiliary verb *be* takes a VP in the present participle form, passive auxiliary verb *be* takes a VP as past participle. Modals take bare infinitives. These verbs can therefore stack.

English:
```
       VP₁
      /  \
    V₁    VP₂
```
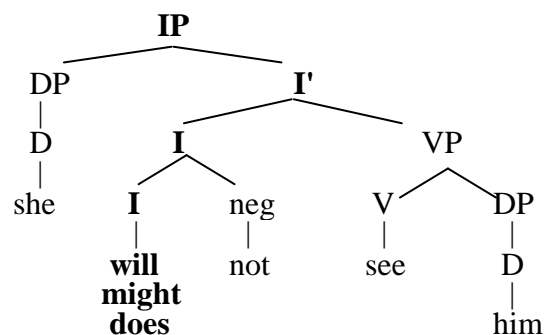VP_1, V_1, VP_2
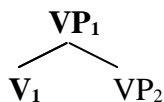
8. Above the VP there is a verbal functional category IP. In English:
   - modals can only appear in I,
   - finite auxiliary verbs **move** from their own V position into I,
   - other verbs (non-finite auxiliaries and main verbs) never move to I.

We are forced to assume an 'abstract relation' between finite main verbs and the finiteness feature in I (eg *She* [I **[+fin]**] *see-s her mother*) to account for this.
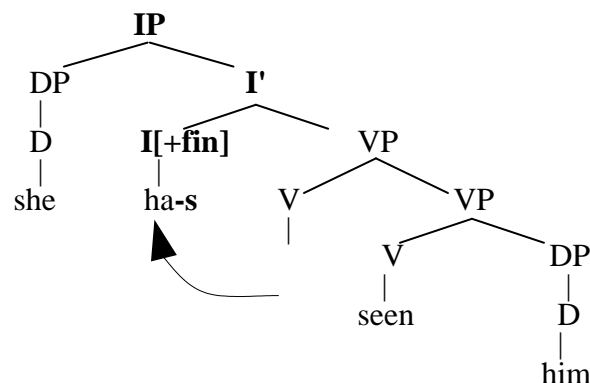
9. The negative *not* is assumed to be an adjunct to I. ('head adjunction')

10. German is much simpler: all verbs behave the same. All verbs are start in V; the one finite verb moves from its V to I.

We therefore analyze English modals and dummy *do* as being in I. A *not* may be adjoined to the I position.

```
                          IP
                  _____|_____
                DP                 I'
                |          _____|_____
                D         I                   VP
                |      ___|___              ___|___
               she    I     neg           V       DP
                      |      |             |       |
                     will    not          see      D
                    might                          |
                    does                          him
```

Auxiliaries move into I to carry the finiteness feature, if they are the top verb, and thus need to be finite.

```
                          IP
                  _____|_____
                DP                 I'
                |          _____|_____
                D       I[+fin]               VP
                |         |              _____|_____
               she      ha-s           V             VP
                         ▲             |          ____|____
                          \            |         V         DP
                           _____seen         |
                                               seen        D
                                                           |
                                                          him
```

Main verbs do not move to I, but stand in an 'abstract relation' to I and the finiteness feature.

```
                          IP
                  _____|_____
                DP                 I'
                |          _____|_____
                D       I[+fin]               VP
                |                        _____|_____
               she       ▲             V             DP
                          ╲            |             |
                           ╲_____see-s            D
                                                     |
                                                    him
```